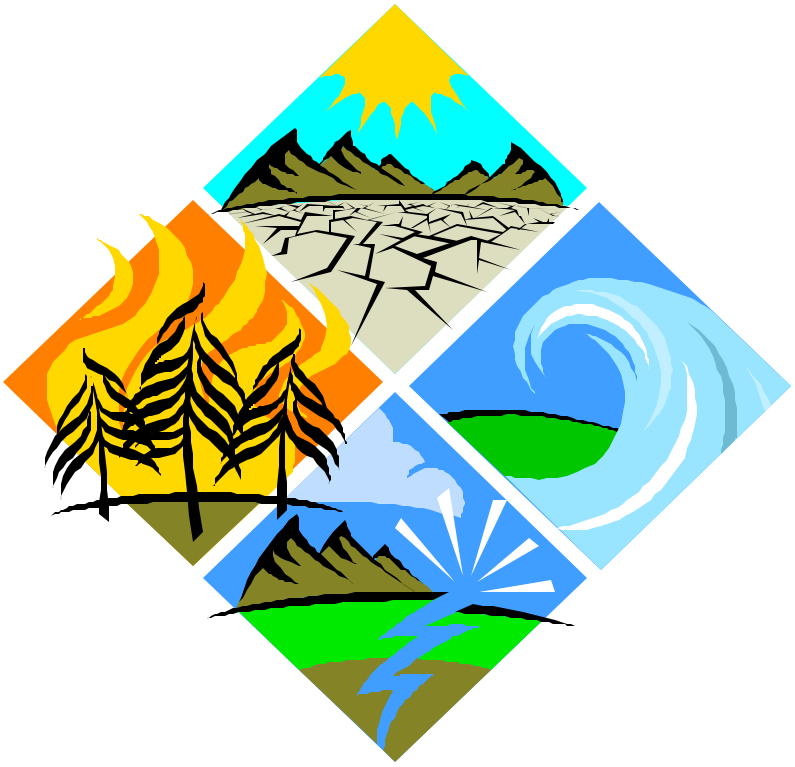
State of Washington
Hazard Mitigation Plan



Executive Summary
July 2004

Washington Military Department
Emergency Management Division

WASHINGTON STATE
HAZARD MITIGATION PLAN
EXECUTIVE SUMMARY

July 2004

Washington Military Department
Emergency Management Division
Hazard Mitigation Program
MS: TA-20, Building 20
Camp Murray, WA 98430-5122

For questions and to make comments on this document, contact:

Mark Stewart
Hazard Mitigation Strategist
(253) 512-7072
m.stewart@emd.wa.gov

GARY LOCKE
Governor

STATE OF WASHINGTON
OFFICE OF THE GOVERNOR
P.O. Box 40002 • Olympia, Washington 98504-0002 • (360) 753-6780 • www.governor.wa.gov

July 1, 2004

TO: Directors of State Agencies, Boards, Commission and Councils, and Presidents of State Colleges and Universities

FROM: Gary Locke, Governor

SUBJECT: **Letter of Approval and Adoption – 2004 Washington State Hazard Mitigation Plan**

With this notice, the *2004 Washington State Hazard Mitigation Plan* (Plan) is hereby approved and adopted. The Plan is the result of a collaborative process by 27 state agencies, a multi-disciplinary State Hazard Mitigation Advisory Team, staff of the Military Department's Emergency Management Division, local emergency managers, state and federal hazard experts, and others.

The Plan provides the framework for reducing the state's vulnerability to natural hazards. It contains an analysis of the state's natural hazards, assesment of risks and vulnerabilities, and description of the manner in which mitigation is planned and carried out. It also identifies goals, objectives and recommended actions, and initiatives of state government to reduce or prevent injury and damage caused by natural hazard events.

Every effort has been made to ensure the Plan meets Federal Emergency Management Agency planning requirements of 44 CFR §201.4 and §201.5 and the laws of Washington State pursuant to Chapter 38.52 RCW. The Plan keeps the state qualified to obtain all disaster assistance, including hazard mitigation grants, available through the Robert T. Stafford Disaster Relief and Emergency Assistance Act, P.L. 93-288, as amended.

I believe that by having all agencies and institutions of state government implement the Plan's actions and initiatives, significant progress will be made in saving lives, preserving the environment, sustaining the economy, and protecting property in Washington from natural hazard events. Therefore, I encourage incorporation of the principles and ideas of the *2004 Washington State Hazard Mitigation Plan* into agency and institutional program strategies and activities.

Attachment

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Plan Summary

Introduction

The purpose of the Washington State Hazard Mitigation Plan is to provide guidance and a framework for hazard mitigation in the State of Washington. It identifies hazard mitigation goals, objectives and recommended actions and initiatives for state government that will reduce injury and damage from natural hazards. Agency annexes to the plan provide strategies for participating state agencies that will improve their resistance to a natural hazard-caused disaster. Agency annexes are not included as part of this document, but are available separately.

This plan meets requirements for a Standard State Plan under Interim Final Rule 44 CFR 201.4, and for an Enhanced State Plan under Interim Final Rule 44 CFR 201.5, both published by the Federal Emergency Management Agency on February 28, 2002.

The state plan only addresses natural hazards at this time, as that is the requirement of the federal regulations cited above. The second edition of the plan, due in 2007, will address manmade and technological hazards, including terrorism, in addition to natural hazards.

This plan keeps the State of Washington qualified to obtain all disaster assistance including hazard mitigation grants available through the Robert T. Stafford Disaster Relief and Emergency Assistance Act, P.L. 93-288, as amended. The enhanced elements of this plan allow the state to obtain greater funding for hazard mitigation planning and projects (up to 20 percent of federal Stafford Act disaster expenditures versus 7.5 percent for a standard state plan) following a Presidential Declaration of Disaster. It also keeps the state eligible for the Pre-Disaster Mitigation Program, and the Flood Mitigation Assistance Program, both available annually.

Without this plan, the State of Washington – and all eligible local jurisdictions – would be ineligible to receive a variety of disaster recovery programs, including the Public Assistance Program to repair or replace damaged public facilities, and the Fire Management Assistance Program to help the state and communities recover the costs of fighting major wildland fires. However, the state and local communities would remain eligible for certain emergency assistance and Human Services programs available through the Stafford Act.

The Planning Process

The Washington State Hazard Mitigation Plan is the product of thousands of hours of work and the effort of people from many organizations. The plan builds on a number of mitigation planning initiatives since 1990, rather than start from a clean sheet of paper.

Staff from the Mitigation Section of the Washington Military Department's Emergency Management Division led the development effort of the new state plan. The division's Hazard Mitigation Strategist directed the planning effort.

Plan Summary

A State Hazard Mitigation Advisory Team assembled by the Mitigation Section provided guidance and assisted with development of the State Hazard Mitigation Plan, including review of previous hazard mitigation planning initiatives and development of Mitigation Strategy and the Action Plan. The 22 members of the team provided expertise and perspective to the planning process, including state and local emergency management, natural hazards, land-use planning, building codes, transportation, and infrastructure.

After the state plan is approved by the Federal Emergency Management Agency, this team will function as an advisor to the State Hazard Mitigation Strategist on various hazard mitigation efforts and issues, including review and revision of the state plan.

The Emergency Management Council reviewed the planning process, the state plan's Mitigation Strategy, and in March 2004 recommended the Governor adopt the plan. The 17-member Council advises the Governor on emergency management practices and issues, including hazard mitigation and damage reduction efforts. Its members represent local government, law enforcement, the fire service, seismic safety, the emergency management community, state agencies, search and rescue volunteers, emergency medical professionals, building officials, and private industry.

Participation of state agencies was critical in the development of the state plan. Twenty-seven state agencies (listed below) participated by identifying potential vulnerable facilities and writing agency-specific annexes to address their vulnerabilities through mitigation actions and initiatives. Other agencies contributed facilities information.

Department of Agriculture
Office of the State Auditor
State School for the Blind
Everett Community College
Department of General Administration**
Higher Education Coordinating Board
Department of Information Services
Department of Labor and Industries
Liquor Control Board
Military Department
Department of Social and Health Services
Department of Veterans Affairs**
Utilities and Transportation Commission
Western Washington University
Office of the Attorney General
Department of Employment Security
Environmental Hearing Office
Office of the Forecast Council
Department of Health
Washington Horse Racing Commission
Office of the Insurance Commissioner
Department of Licensing
Marine Employees Commission
Department of Revenue
South Puget Sound Community College
University of Washington
Washington State Patrol

** -- *Annex still under development.*

These agencies own or lease more than 2,600 facilities of the 11,000-plus state facilities tracked by the State Office of Financial Management in its annual inventory of state assets.

To ensure the accuracy and completeness of information on hazards, validate criteria to identify local jurisdictions most vulnerable to each hazard, and ensure conformity to federal hazard mitigation planning requirements, each Hazard Profile was subject to a thorough review by hazard experts.

Finally, local emergency managers reviewed and provided comment on the state plan.

Coordination of Local Planning

The Mitigation Section of the Washington Military Department's Emergency Management Division has worked with local jurisdictions to encourage and support local hazard mitigation planning since publication of hazard mitigation planning regulations in February 2002. The section's staff provided assistance in a number of ways, including on-site visits and providing training, planning grants and planning software, hazard and socio-economic information and coordinating information requests from state government, and participating in local plan development activities.

Through October 2003, section staff met with more than 200 jurisdictions to discuss the hazard mitigation planning requirement or provide training; helped 33 jurisdictions receive planning grants; provided 23 counties and 2 cities with mitigation planning software; and provided hazard profiles, social and economic descriptions of the state's nine regions, and other information pertinent to the hazard mitigation planning process.

To be as effective and complete as possible, the Washington State Hazard Mitigation Plan should incorporate information on hazards and risk assessment from local plans. Because of the limited number of local plans approved to date, this edition of the plan only reflect in a general manner the findings of local plan risk assessments and themes from the goals and objectives of the local plan mitigation strategies. More than 30 multi-jurisdiction local hazard mitigation plans should be completed and approved before the second edition of the state plan is developed in 2007. This number of plans, and the areas they represent, should provide adequate information to influence and inform both the Risk Assessment and the Mitigation Strategy of the state plan.

Prioritizing Recipients for Hazard Mitigation Grants

The process used to review, evaluate and select projects for hazard mitigation grants builds on years of public participation, and it supports the state's home-rule form of government.

The state's Hazard Mitigation Program uses a competitive system to evaluate and recommend projects for funding. Both federal and state criteria are used; among the

state criteria are requirements that potential grant applicants demonstrate good standing in the National Flood Insurance Program and have a current approved Critical Areas Ordinance and / or a current approved comprehensive land-use plan required by the State Growth Management Act.

Projects recommended for funding are those that best document their ability to reduce future impacts of natural disasters as well as demonstrate cost-effectiveness through a benefit-cost review. Only projects with a minimum benefit-cost ratio of 1-to-1 receive further consideration by a review committee.

Typically, hazard mitigation funds following a disaster are available on a competitive basis to all eligible agencies and organizations statewide.

Maintaining the Plan

The Washington State Hazard Mitigation Plan is a living document and will be reviewed, updated and adopted by the state and submitted to the Federal Emergency Management Agency for approval every three years. The plan will be revised more frequently if conditions under which the plan was developed materially change – through new or revised state policy, a major disaster, or availability of funding, for example – to reflect the new reality of hazard mitigation in Washington State.

Those who will participate in the maintenance of this plan include the State Hazard Mitigation Advisory Team; representatives of the state agencies that participated in development of the state plan; and representatives of local jurisdictions whose hazard mitigation plans influenced the development of the state plan.

Review of the state plan will take place in three ways:

- Annually, for progress made on mitigation actions and projects identified in the Mitigation Strategy of the state plan and in the agency annexes.
- After each major disaster in Washington State declared by the President, to look for areas where the state plan should to be refocused due of the impact of the disaster.
- Every three years before the state plan is resubmitted for approval to the Federal Emergency Management Agency.

State agencies will review and revise their annexes to the state plan using the processes they identified and described in their annexes.

The process used to monitor the implementation of mitigation measures identified in the plan will be similar to the one used to monitor, evaluate and update the content of the plan.

Review on progress implementing the actions and projects identified in the state plan's Mitigation Strategy and in state agency annexes will occur every six months. State agencies that are part of the state plan will submit brief progress reports on a semi-

annual basis, with the schedule to be determined by the date of the state plan approval. The Washington Emergency Management Division's Mitigation Section will track progress of actions and projects identified in the state plan and agency annexes.

Risk Assessment

The *State Hazard Identification and Vulnerability Assessment, April 2001* identifies nine natural hazards that have the greatest potential to adversely affect the people, environment, economy and property of the state Washington – avalanche, drought, earthquake, flood, landslide, severe storm, tsunami, volcano, and wildland fire. The state has received 37 Presidential Disaster Declarations for natural hazard events since 1956.

Below are synopses of these hazards and the risk they pose to facilities of the state agencies participating in the development of this plan.

Avalanche – Avalanches have killed more than 190 people in the past century, exceeding deaths from any other natural hazard in Washington State. Most victims are involved in recreation activities in the mountain backcountry where there is no avalanche control. Avalanches occur in four mountain ranges in the state – the Cascade Range, which divides the state east and west, the Olympic Mountains in northwest Washington, the Blue Mountains in southeast Washington, and the Selkirk Mountains in northeast Washington.

Based on the location of key transportation routes and recreational areas threatened by avalanche, parts of the following counties are most vulnerable to avalanche:

Asotin	Chelan	Ferry	Garfield
King	Kittitas	Klickitat	Lewis
Okanogan	Pend Oreille	Pierce	Skagit
Skamania	Snohomish	Whatcom	Yakima

State agencies participating in this plan have not identified any other state-owned facilities as being vulnerable to avalanche. A number of highways with mountain passes, or which traverse mountainous areas are potentially at risk, including Interstate 90, U.S. Highways 2, 12 and 97, and State Routes 20, 123, 129, 410, 504, and 542.

Drought – Drought threatens crops that rely on natural precipitation, threatens supplies of water for irrigated crops and for communities, and increases the threat of wildfires from dry conditions in forest and rangelands. It also threatens the supply of electricity in Washington, as hydroelectric plants generate nearly three-quarters of the electricity produced in the state.

The following counties are most vulnerable to the impacts of drought, based on their history of drought, demand on available water for crops and people, and inability to

endure the economic conditions brought about by drought:

Adams	Benton	Chelan	Douglas	Franklin
Grant	Kittitas	Klickitat	Okanogan	Yakima

State agencies participating in the plan have determined that 251 state-owned facilities are potentially at risk to the secondary impacts of drought. At their maximum capacity, the facilities house more than 12,125 workers, students, visitors, and residents. The approximate value of state-owned structures is $295 million, and the approximate value of contents of all vulnerable structures is $137 million. Agencies identified 93 critical facilities as potentially at risk to the secondary impacts of drought. At their maximum capacity, the facilities house more than 4,113 workers, students, visitors, and residents. The approximate value of state-owned structures is $202 million, and the approximate value of contents of all vulnerable structures is $100 million.

Earthquake – More than 1,000 earthquakes occur in Washington each year. A dozen or more quakes are felt; occasionally, they cause damage. The earthquake threat is not uniform; most occur in Western Washington.

Deep earthquakes similar to the magnitude 6.8 Nisqually event in 2001 occur about once every 35 years, while earthquakes similar to the larger, M7.1 Olympia earthquake in 1949 occur about once every 110 years. Powerful subduction zone earthquakes of magnitude 8 to 9 occur off the coast about once every 350 to 500 years. Shallow crustal earthquakes are of particular concern, especially those on active faults in the Puget Lowland, where much of the state's population and economic base is located. Geologists currently believe that a shallow earthquake of magnitude 6.5 or greater occurs on one of these faults about once every 333 years.

The following counties are at greatest risk and most vulnerable to earthquakes based on projected annualized earthquake losses as calculated by HAZUS (Hazards US loss estimation tool), recommendations of state and federal geologists, and size of potentially vulnerable populations and housing stock:

Benton	Chelan	Clallam	Clark	Cowlitz	Grays Harbor
Island	Jefferson	King	Kitsap	Kittitas	Lewis
Mason	Pacific	Pierce	San Juan	Skagit	Snohomish
Spokane	Thurston	Wahkiakum	Walla Walla	Whatcom	Yakima

State agencies participating in the plan have determined that 2,243 state-owned facilities are potentially at risk to earthquake. At their maximum capacity, the facilities house more than 256,065 workers, students, visitors, and residents. The approximate value of state-owned structures is $10.7 billion, and the approximate value of contents of all vulnerable structures is $4.9 billion. Agencies identified 818 critical facilities as potentially as risk to earthquake. At their maximum capacity, the facilities house more

than 85,121 workers, students, visitors, and residents. The approximate value of state-owned structures is $3.8 billion, and the approximate value of contents of all vulnerable structures is $2.8 billion.

Flood – Floods cause loss of life, and damage structures, crops, land, flood control structures, roads, and utilities. Floods also cause erosion and landslides, and can transport debris and toxic products that cause secondary damage.

There have been 27 Presidential Disaster Declarations for flooding in Washington State since 1956. Every county has received a Presidential Disaster Declaration for flooding since 1970. While not every flood creates enough damage to merit such a declaration, most are severe enough to warrant intervention by local, state or federal authorities.

The following counties are at greatest risk and most vulnerable to flooding due to the number of flood disasters, percentage of area in floodplain, number of flood insurance policies in effect and flood insurance claims paid since 1978:

Clark	Cowlitz	Grays Harbor	King
Lewis	Mason	Pacific	Pierce
Skagit	Snohomish	Thurston	Whatcom

State agencies participating in the plan have determined that 455 state-owned facilities are potentially at risk to flooding. At their maximum capacity, the facilities house more than 21,579 workers, students, visitors, and residents. The approximate value of state-owned structures is $526 million, and the approximate value of contents of all vulnerable structures is $450 million. Agencies identified 192 critical facilities as potentially as risk to flood. At their maximum capacity, the facilities house more than 9,085 workers, students, visitors, and residents. The approximate value of state-owned structures is $217 million, and the approximate value of contents of all vulnerable structures is $231 million.

Landslide – Landslide is the movement of rock, soil and debris down a hillside or slope. Landslides take lives, destroy homes, businesses, and public buildings, interrupt transportation, undermine bridges, derail train cars, cover clam and oyster beds and other marine habitat, and damage utilities.

Areas historically subject to landslides include the Columbia River Gorge, the banks of Lake Roosevelt, the Interstate 5 corridor, U.S. 101 Highway corridor along the Pacific Coast and from the coast to Olympia, the Cascade and Olympic mountain ranges, and Puget Sound coastal bluffs.

The following jurisdictions have the greatest vulnerability to landslides based on past landslide damage and information from state and federal landslide experts:

Asotin	Chelan	Clallam	Clark	Columbia
Cowlitz	Ferry	Garfield	Grays Harbor	Island
Jefferson	King	Kitsap	Kittitas	Klickitat
Lewis	Lincoln	Mason	Okanogan	Pacific
Pierce	San Juan	Skagit	Skamania	Snohomish
Stevens	Thurston	Walla Walla	Whatcom	Yakima

State agencies participating in the plan have determined that 485 state-owned facilities are potentially at risk to landslide. At their maximum capacity, the facilities house more than 33,672 workers, students, visitors, and residents. The approximate value of state-owned structures is $917 million, and the approximate value of contents of all vulnerable structures is $644 million. Agencies identified 216 critical facilities as potentially as risk to landslide. At their maximum capacity, the facilities house more than 23,112 workers, students, visitors, and residents. The approximate value of state-owned structures is $682 million, and the approximate value of contents of all vulnerable structures is $493 million.

Severe storm – All areas of Washington State are vulnerable to severe weather. A severe storm is an atmospheric disturbance that results in one or more of the following phenomena: strong winds, large hail, thunderstorm, tornado, rain, snow, or freezing rain.

Factors used to determine which jurisdictions are most vulnerable to severe storms include analysis by National Weather Service warning coordination meteorologists and frequency of occurrence of various severe storm types.

The following jurisdictions have the greatest vulnerability to high winds:

Benton	Clallam	Clark	Columbia	Cowlitz	Grays Harbor
Island	Jefferson	King	Kitsap	Kittitas	Lewis
Mason	Pacific	Pierce	San Juan	Skagit	Snohomish
Thurston	Wahkiakum	Whatcom	Yakima		

The following jurisdictions have the greatest vulnerability to winter storm:

Clark	Cowlitz	Douglas	Garfield	Grant	King
Kittitas	Mason	Okanogan	Pierce	Skagit	Skamania
Snohomish	Spokane	Thurston	Walla Walla	Whatcom	Yakima

The following jurisdictions have the greatest vulnerability to blizzard:

Adams	Asotin	Clark	Douglas	Ferry	Garfield
Grant	Kittitas	Lincoln	Okanogan	Pend Oreille	Skamania
Stevens	Walla Walla	Whatcom	Whitman		

The following jurisdictions have the greatest vulnerability to dust storm:

Adams	Benton	Columbia	Douglas	Franklin	Grant
Lincoln	Spokane	Walla Walla	Whitman	Yakima	

The following jurisdictions have the greatest vulnerability to severe thunderstorms:

Adams	Asotin	Benton	Chelan	Columbia
Douglas	Ferry	Garfield	Grant	Kittitas
Klickitat	Lincoln	Okanogan	Pend Oreille	Skamania
Spokane	Walla Walla	Whitman	Yakima	

The following jurisdictions have the greatest vulnerability to tornado:

Adams	Asotin	Benton	Clark	Columbia	Cowlitz
Franklin	Garfield	Grant	Grays Harbor	King	Klickitat
Lincoln	Okanogan	Pacific	Pend Oreille	Pierce	Snohomish
Spokane	Stevens	Walla Walla	Whitman	Yakima	

The following jurisdictions have the greatest vulnerability to coastal flooding:

Clallam	Grays Harbor	Island	Jefferson	King
Kitsap	Pacific	Pierce	San Juan	Skagit
Snohomish	Thurston	Whatcom		

State agencies participating in the plan have determined that 2,115 state-owned facilities are potentially at risk to severe storms of all types. At their maximum capacity, the facilities house more than 312,729 workers, students, visitors, and residents. The approximate value of state-owned structures is $9.4 billion, and the approximate value of contents of all vulnerable structures is $3.5 billion. Agencies identified 763 critical facilities as potentially as risk to severe storms. At their maximum capacity, the facilities house more than 83,823 workers, students, visitors, and residents. The approximate value of state-owned structures is $3.8 billion, and the approximate value of contents of all vulnerable structures is $2 billion.

Tsunami – The Pacific Coast, Strait of Juan de Fuca, Puget Sound, and large lakes are at risk from tsunamis, trains of powerful, fast-moving waves that threaten people and property along shorelines. Large earthquakes, landslides and volcanic eruptions

generate tsunamis. Tsunamis typically cause the most severe damage and casualties near their source. Nearby populations often have little time to react; persons caught in the path of a tsunami often have little chance of survival.

The following jurisdictions have the greatest vulnerability to tsunamis:

Clallam	Grays Harbor	Island	Jefferson	King
Kitsap	Mason	Pacific	Pierce	San Juan
Skagit	Snohomish	Thurston	Whatcom	

State agencies participating in the plan have determined that 67 state-owned facilities are potentially at risk to direct damage or to the indirect impacts of tsunamis. At their maximum capacity, the facilities house more than 4,260 workers, students, visitors, and residents. The approximate value of state-owned structures is $98 million, and the approximate value of contents of all vulnerable structures is $85 million. Agencies identified 40 critical facilities as potentially as risk to direct damage or to the indirect impacts of tsunamis. At their maximum capacity, the facilities house more than 2,907 workers, students, visitors, and residents. The approximate value of state-owned structures is $72 million, and the approximate value of contents of all vulnerable structures is $28 million.

Volcano – Washington is home to five major volcanoes – Mount Baker, Glacier Peak, Mount Rainier, Mount St. Helens and Mount Adams – and Oregon's Mount Hood is nearby. Volcanoes can lie dormant for centuries between eruptions. When they erupt, pyroclastic flows, lava flows, and landslides can devastate areas 10 or more miles away, while lahars can inundate valleys more than 50 miles downstream. Falling ash can disrupt human activities hundreds of miles downwind. Lahars pose the greatest risk to public health and safety.

Mount Rainier is one of the most hazardous volcanoes in the United States. It has produced at least four eruptions and numerous lahars in the past 4,000 years. More glacier ice covers the mountain than covers the rest of the Cascades volcanoes combined, and its steep slopes are under constant attack from hot, acidic volcanic gases and water. These factors make this volcano especially prone to landslides and lahars. More than 230,000 people live on former lahars in river valleys below the volcano.

The following jurisdictions are most vulnerable to damaging lahars from a volcanic eruption:

Clark	Cowlitz	King	Klickitat
Lewis	Pierce	Skagit	Skamania
Snohomish	Thurston	Whatcom	

State agencies participating in the plan have determined that 541 state-owned facilities

are potentially at risk to lahar from volcanic eruption. At their maximum capacity, the facilities house more than 34,308 workers, students, visitors, and residents. The approximate value of state-owned structures is $1 billion, and the approximate value of contents of all vulnerable structures is $1 billion. Agencies identified 186 critical facilities as potentially as risk to lahar from volcanic eruption. At their maximum capacity, the facilities house more than 10,317 workers, students, visitors, and residents. The approximate value of state-owned structures is $533 million, and the approximate value of contents of all vulnerable structures is $170 million.

Wildland Fire – Short-term loss caused by wildland fire can include the destruction of timber, wildlife habitat, scenic vistas, and watersheds, and increase vulnerability to flooding. Long-term effects include smaller timber harvests, reduced access to affected recreational areas, and destruction of cultural and economic resources and community infrastructure.

The State Forester has determined the following jurisdictions are most vulnerable to wildland fire due to risk factors that include fire history, types and density of fuels, weather conditions, topography, and number and density of structures:

Adams	Asotin	Benton	Chelan	Clallam
Clark	Columbia	Cowlitz	Ferry	Garfield
Jefferson	King	Kitsap	Kittitas	Klickitat
Lewis	Lincoln	Mason	Okanogan	Pacific
Pend Oreille	Pierce	San Juan	Skagit	Skamania
Snohomish	Spokane	Stevens	Thurston	Wahkiakum
Walla Walla	Whatcom	Whitman	Yakima	

State agencies participating in the plan have determined that 843 state-owned facilities are potentially at risk to wildland fire. At their maximum capacity, the facilities house more than 63,388 workers, students, visitors, and residents. The approximate value of state-owned structures is $1.5 billion, and the approximate value of contents of all vulnerable structures is $1.6 billion. Agencies identified 408 critical facilities as potentially as risk to wildland fire. At their maximum capacity, the facilities house more than 46,163 workers, students, visitors, and residents. The approximate value of state-owned structures is $1.1 billion, and the approximate value of contents of all vulnerable structures is $1.3 billion.

Mitigation Goals and Objectives

The State Hazard Mitigation Advisory Team prepared the goals, objectives, and mitigation actions and initiatives – the mitigation strategy – of the Washington State Hazard Mitigation Plan. This team developed the action agenda (that begins on page 14) following presentations and discussions on the impact of natural hazards and on the

state's socioeconomic makeup (the risk assessment of this plan); review and discussion of previous mitigation planning initiatives; and review and discussion of the mitigation goals and objectives of the state agencies participating in development of this plan and of approved local plans.

The mitigation action agenda addresses or solves statewide mitigation issues or problems rather than identifying which state facilities require seismic retrofit, for example; the annexes of the participating agencies appropriately provide the lowest level of detail and actions designed to reduce damage or injuries at the facility level.

The State Hazard Mitigation Advisory Team developed the following mission statement for the State Hazard Mitigation Plan and the following goals and objectives for hazard mitigation.

Mission of the State Hazard Mitigation Plan: Reduce the adverse impacts of natural hazards and losses caused by natural hazard disasters.

State Mitigation Goals and Objectives**:**

Goal 1: Protect Life.

- Objective 1.1 – Improve systems that provide warning and emergency communications.
- Objective 1.2 – Develop or amend laws so they effectively address hazard mitigation.
- Objective 1.3 – Reduce the impacts of hazards on vulnerable populations.
- Objective 1.4 – Strengthen state and local building code enforcement.
- Objective 1.5 – Train emergency responders.

Goal 2: Protect Property.

- Objective 2.1 – Protect critical assets.
- Objective 2.2 – Protect and preserve facility contents.
- Objective 2.3 – Reduce repetitive losses, including those caused by flooding.

Goal 3: Promote a Sustainable Economy.

- Objective 3.1 – Provide incentives for mitigation planning and actions.
- Objective 3.2 – Form partnerships to leverage and share resources.
- Objective 3.3 – Continue critical business operations.

Goal 4: Protect the Environment.

- Objective 4.1 – Develop hazard mitigation policies that protect the environment.

Goal 5: Increase Public Preparedness for Disasters.

- Objective 5.1 – Understand natural hazards and the risk they pose.
- Objective 5.2 – Improve hazard information, including databases and maps.

- Objective 5.3 – Improve public knowledge of hazards and protective measures so individuals appropriately respond during hazard events.
- Objective 5.4 – Develop new policies to enhance hazard mitigation initiatives.

Plan Summary

Goal #1 – Protect Life						
Strategy	**Action**	**Responsible Agency**	**Projected Timeline**	**Projected Resources**	**Rationale for Action**	**How Action Contributes to Mitigation Strategy**
1.1 – Improve systems that provide warning and emergency communications.	1.1.1 – Develop a plan and seek funding to expand the pilot All-Hazard Alert Broadcasting (AHAB) radio local warning system statewide.	State Emergency Management Division	1 year	Existing state resources	Communities are seeking inexpensive ways to expand warning and emergency communication with the public.	Expanding AHAB improves local and state capability to protect life.
	1.1.2 – Help National Weather Service expand NOAA Weather Radio coverage, especially in high terrain areas.	State Emergency Management Division, with the National Weather Service	Ongoing	Existing state resources	Improved coverage increases the number people able to receive warning of potentially life threatening weather events.	Expanding this system improves local and state capability to protect life.
	1.1.3 – Investigate the feasibility of developing a real-time landslide warning system along key transportation routes.	Department of Natural Resources – Division of Geology and Earth Resources, Department of Transportation, and State Emergency Management Division with US Geological Survey	6-8 Years	Resources to be determined	Landslides have closed Interstate 5, major N-S rail line used by Amtrak, and other corridors used by large numbers of people.	Such a system would help protect people traveling over the state's essential transportation routes vulnerable to landslide.

Goal #1 – Protect Life						
Strategy	**Action**	**Responsible Agency**	**Projected Timeline**	**Projected Resources**	**Rationale for Action**	**How Action Contributes to Mitigation Strategy**
	1.1.4 – Develop a plan to install satellite-based, real-time tsunami and earthquake information systems in county and city emergency operation centers.	Department of Natural Resources – Division of Geology and Earth Resources and State Emergency Management Division with US Geological Survey and National Oceanic and Atmospheric Administration	Pilot sites installed mid 2004; 1 year to develop strategy to expand system	NOAA – National Tsunami Hazard Mitigation Program, US Geological Survey, and existing sources	Local and state responders need better information on areas most seriously damaged by an earthquake or tsunami immediately after an event.	System allows communities to target resources for immediate life-safety actions and long-term mitigation initiatives to areas most seriously impacted.
	1.1.5 – Develop maps with information on land ownership, response boundaries, roads, and other features to allow fire fighting agencies to adequately prepare for response to wildland fires in interface areas.	Department of Natural Resources – Resource Protection Division	Ongoing	Existing resources	Many interface fire agencies do not have maps showing current ownership, responsible fire agency, physical features or pre-fire plans.	Lack of maps with adequate information can inhibit effective fire protection and lead to an ineffective initial attack by fire fighting agencies.
1.2 – Develop or amend laws so they effectively address hazard mitigation.	1.2.1 – Develop and promote comprehensive and cost-effective recommendations for local land-use plans and ordinances that reduce the risk of natural hazards, including wildland fire in interface areas.	Department of Natural Resources – Resource Protection Division, with the Department of Community Trade and Economic Development – Growth Management Division	Ongoing	Existing state resources	Development in interface areas are at greater risk because they often lack adequate water, roads, street signs, house numbers and quick fire response found in urban areas.	Regulations that address interface fires and other hazards increase the probability that lives and property will be protected and saved.

Goal #1 – Protect Life						
Strategy	**Action**	**Responsible Agency**	**Projected Timeline**	**Projected Resources**	**Rationale for Action**	**How Action Contributes to Mitigation Strategy**
	1.2.2 – Expand the number of local governments that include hazard reduction planning into their land-use plans and development regulations.	Department of Community Trade and Economic Development – Growth Management Division, with State Emergency Management Division	Ongoing	Existing state resources	Development in hazard areas places more people and structures at risk than is necessary.	Expanding hazard reduction efforts will protect more people from hazards.
	1.2.3 – Develop and promote recommendations for local ordinances to prevent fires in interface areas resulting from fireworks, debris burning, campfires, and other human-caused sources.	Department of Natural Resources – Resource Protection Division, with Department of Community Trade and Economic Development – Local Government Division and Washington State Patrol – Office of the State Fire Marshal	Ongoing	Existing state resources	Development in interface areas are at greater risk because they often lack adequate water, roads, street signs, house numbers and quick fire response found in urban areas.	Regulations that address interface fires and other hazards increase the probability that lives and property will be protected and saved.
	1.2.4 – Identify and resolve conflicts in laws and regulations that currently prevent effective fuel management in wildland fire interface areas.	Department of Natural Resources – Resource Protection Division, with Department of Community Trade and Economic Development – Local Government Division	Ongoing	Existing state resources	Effective fuel management often conflicts with laws such as the Clean Air Act, resulting in accumulation of debris on the forest floor.	Reducing conflicts in laws will make it easier to mange forest fuels, prevent interface fires and protect the public.

Goal #1 – Protect Life						
Strategy	**Action**	**Responsible Agency**	**Projected Timeline**	**Projected Resources**	**Rationale for Action**	**How Action Contributes to Mitigation Strategy**
	1.2.5 – Request the Governor's Office prepare an executive order requiring state agencies to include hazard mitigation actions into owned and leased structures upon first occupancy, into renovation of existing owned structures, and into the design or redesign of interior work spaces.	State Emergency Management Division, with Department of General Administration, Governor's Emergency Management Council, and Office of Financial Management – Executive Policy Office	2 years	Existing state resources	An Executive Order places greater emphasis mitigating hazards and improving the disaster assistance of state government.	Improving disaster resistance of state-owned structures will protect the lives of state workers and those who visit or reside in those facilities.
1.3 – Reduce the impacts of hazards on vulnerable populations	1.3.1 – Help K-12 schools and state colleges and universities develop vulnerability assessments, mitigation plans and mitigation projects to improve safety in their most vulnerable buildings.	State Emergency Management Division, with Office of Superintendent of Public Instruction, public schools and higher education institutions	Ongoing	Existing local and state resources, federal mitigation grant funds	A significant percentage of K-12 and college students may be in seismically vulnerable buildings; funding for retrofits is lacking.	Improving the structural integrity of K-12 schools and facilities in the higher education system will improve the safety of hundreds of thousands of students.
	1.3.2 – Develop a pilot project that provides funding or incentives for non-structural seismic mitigation in low-income households and for housing that is vulnerable to the effects of natural hazards.	Department of Community Trade and Economic Development – Housing and Local Government Divisions, with State Emergency Management Division	Project underway in Seattle; additional projects, fund sources – 3 years	Existing local and state resources, federal mitigation grant funds	A significant number of households live in housing build before modern building codes and are potentially at risk to hazard events.	Improving the structural integrity of vulnerable homes and securing contents will improve the safety of households who otherwise might not be able to afford the work.

Plan Summary

Goal #1 – Protect Life						
Strategy	**Action**	**Responsible Agency**	**Projected Timeline**	**Projected Resources**	**Rationale for Action**	**How Action Contributes to Mitigation Strategy**
1.4 – Strengthen state and local building codes and enforcement.	1.4.1– Pursue certification of building inspectors through code organizations and provide continuing education to improve the quality of building inspections.	State Building Code Council, with Washington Association of Building Officials	2 Years	Building Permit Fees	Additional education and training of building inspectors will improve inspections.	Improving building inspections will improve the integrity of structures and protect occupants during hazard events.
1.5 – Train emergency responders.	1.5.1 – Deliver standardized training on wildland fires to firefighters responding to fires in interface areas.	Department of Natural Resources – Resource Protection Division, with Washington State Patrol – Office of the State Fire Marshal, and the state's fire services	Ongoing	Existing state and federal resources	Training will better prepare urban firefighters, more accustomed to structure fires, for wildland interface fires.	Better-trained firefighters result in safer, better-protected communities.

Goal #2 – Protect Property						
Strategy	**Action**	**Responsible Agency**	**Projected Timeline**	**Projected Resources**	**Rationale for Action**	**How Action Contributes to Mitigation Strategy**
2.1 – Protect critical assets.	2.1.1 – Prioritize structural and non-structural retrofits for critical state-owned facilities based on their vulnerability to natural hazards.	Department of General Administration	3 Years	Existing state resources, capital budget funds	Prioritizing will address the most vulnerable structures first.	Retrofitting facilities based on their vulnerability will preserve important state buildings, as well as protect their records, systems and occupants from hazard events.

Goal #2 – Protect Property						
Strategy	**Action**	**Responsible Agency**	**Projected Timeline**	**Projected Resources**	**Rationale for Action**	**How Action Contributes to Mitigation Strategy**
	2.1.2 – Develop a pilot project that analyzes vulnerability of various school construction types to earthquake damage and recommend mitigation measures for each construction type.	State Emergency Management Division, with the State Building Code Council, Office of Superintendent of Public Instruction, and local school districts	1 Year	Existing resources	Project provides school officials with more information on the EQ hazard they face and mitigation measures they can take.	Recommending mitigation measures allows school officials to make better decisions on how to preserving their buildings and protect students, staff and visitors.
	2.1.5 – Develop a plan to examine the vulnerability of transportation infrastructure and lifelines along the Interstate 5 corridor from Vancouver, B.C., to Portland, OR, and the Interstate 90 corridor from Seattle to Coeur d'Alene, ID, using the recently completed Port to Port Transportation Corridor Earthquake Vulnerability Study as a model. The plan should include strategies to obtain funding for this work.	State Emergency Management Division, with Department of Transportation and others	3 years	Existing resources	When completed, project will expand knowledge of decision makers about the vulnerability of the state's most critical transportation infrastructure and lifelines.	Understanding vulnerability will help frame discussion by decision makers on how to preserve and protect assets critical to the economy of the state from hazard events.

Goal #2 – Protect Property						
Strategy	**Action**	**Responsible Agency**	**Projected Timeline**	**Projected Resources**	**Rationale for Action**	**How Action Contributes to Mitigation Strategy**
2.2 – Protect and preserve facility contents.	2.2.1 – Develop a pilot project that provides funding or incentives for non-structural seismic mitigation in facilities that serve vulnerable populations (e.g., children, elderly, low income).	State Emergency Management Division, with Department of Community Trade and Economic Development – Local Government Division, Department of Social and Health Services, and Department of Health	3 years	Existing and future state EQ program resources, possibly mitigation grant funds	A significant number of students and people living in institution settings may be in buildings at risk to ground shaking from earthquakes.	Securing contents will protect them from damage and improve the safety of vulnerable populations in schools and institutions.
	2.2.2 – Help state agencies and the state's colleges and universities assess the seismic safety of facilities in high-risk areas and develop recommendations to mitigate seismic hazards.	Department of General Administration and State Emergency Management Division, with state agencies and higher education institutions	3 years	Existing resources	A significant percentage of state workers, visitors and residents of state facilities, and college students may be in seismically vulnerable buildings; funding for retrofits is lacking.	Improving the structural integrity of general state government and higher education facilities will improve the safety of hundreds of thousands of people.

Goal #2 – Protect Property						
Strategy	**Action**	**Responsible Agency**	**Projected Timeline**	**Projected Resources**	**Rationale for Action**	**How Action Contributes to Mitigation Strategy**
	2.2.3 – Encourage increased funding to speed up mitigation of identified seismic hazards in vulnerable state agency facilities and the state's colleges and universities.	State Emergency Management Division, Department of General Administration, and Higher Education Coordinating Board	3 years	Existing resources	The state has a billion-dollar backlog of deferred maintenance and other work to address life-safety issues of buildings in the higher education system.	Speeding up actions to protect vulnerable buildings will improve protection of state assets and the people who work, live, visit or study in them.
	2.2.4 – Develop a real-time monitoring program (SHAKECAST) for critical state bridges and make the data available for use in regional shake maps.	Department of Transportation and University of Washington	1 Year	Existing program resources	Real-time data sensors help managers to make decisions on structural integrity mitigation measures following an earthquake.	Data improves operational capability of emergency managers following an earthquake and helps engineers develop mitigation measures for bridges and lifelines.
2.3 – Reduce repetitive losses, including those caused by flooding.	2.3.1 – Help communities identify repetitive loss areas and obtain potential funding for mitigation in those areas.	Department of Ecology – Floodplain Management, Department of Natural Resources, with State Emergency Management Division	Ongoing	Existing resources, including Flood Control Account Assistance Program and mitigation grant programs	Identifying repetitive loss areas and properties helps communities develop a strategy to reduce future hazard losses.	Retrofitting, elevating or removing repetitive loss properties from known hazard areas protects property and lives as well as preserve personal, state and federal financial resources.

Goal #2 – Protect Property						
Strategy	**Action**	**Responsible Agency**	**Projected Timeline**	**Projected Resources**	**Rationale for Action**	**How Action Contributes to Mitigation Strategy**
	2.3.2 – Streamline the permitting and funding processes for flood damage reduction and stream improvement projects.	Department of Ecology – Floodplain Management, Department of Fish and Wildlife, and Governor's Office of Regulatory Assistance	Permitting – Ongoing; Funding – 3 Years	Existing resources	Allows important damage reduction strategies to be completed more quickly.	The quicker flood improvement projects are completed, the less property damage future flood events will cause.
	2.3.3 – Update guidelines for comprehensive flood hazard management plans, the state model flood damage prevention ordinance, and policy guidance to reduce flood losses.	Department of Ecology – Floodplain Management	2 Years	Additional state resources required	Updated plans, ordinances and policies will take into account current land-use regulations and the status of development in hazard-prone communities.	Up-to-date planning guidelines, policy guidance and model flood ordinance will lead to improved local strategies to prevent property damage caused by flood.
	2.3.4 – Encourage communities to record high water marks to improve or update flood maps or develop other measures to reduce flood damage.	Department of Ecology – Floodplain Management	Ongoing	Existing resources	Recording high water marks from flood events will allow for development of up-to-date flood maps.	Better information on past flood events will improve decisions on floodplain management and strategies to protect lives and property.
	2.3.5 – Seek additional resources to expand the Flood Control Assistance Account Program.	Department of Ecology – Floodplain Management, with Emergency Management Council	Ongoing	Additional resources required to expand FCAAP	Program resources were cut in half for 2003-05 state budget due to revenue shortfall.	FCAAP supports local planning and projects to reduce property damage caused by flood.

Goal #2 – Protect Property						
Strategy	**Action**	**Responsible Agency**	**Projected Timeline**	**Projected Resources**	**Rationale for Action**	**How Action Contributes to Mitigation Strategy**
	2.3.6 – Establish database to record effectiveness of hazard mitigation projects.	State Emergency Management Division	2 Years	Existing resources	Existing state process for collecting and storing such information is ineffective and time consuming.	Understanding effectiveness of existing mitigation projects will improve the process of developing and selecting new projects.

Goal #3 – Promote A Sustainable Economy						
Strategy	**Action**	**Responsible Agency**	**Projected Timeline**	**Projected Resources**	**Rationale for Action**	**How Action Contributes to Mitigation Strategy**
3.1 – Provide incentives and resources for mitigation planning	3.1.1 – Provide grants, planning tools, training and technical assistance to increase the number of public and private sector hazard mitigation plans and initiatives, especially multi-jurisdiction partnerships.	State Emergency Management Division	Ongoing	Existing resources, mitigation grants	Providing incentives and resources encourages organizations to develop hazard mitigation plans and initiatives they otherwise might not have.	Expanding the number of hazard mitigation initiatives will improve the state's resistance to hazards and reduce the impact of hazard events on the state economy.
	3.1.2 – Develop a web-based hazard risk awareness tool to help state and local emergency managers take steps to reduce the impacts of potential imminent hazard events.	State Emergency Management Division	2 years	NASA grant	A real-time tool to help local officials assess the impact of potential future hazard events does not currently exist.	Improving knowledge about pending possible hazard events will help local officials improve take steps to reduce the impact of hazard events on local and state economies.

Goal #3 – Promote A Sustainable Economy						
Strategy	**Action**	**Responsible Agency**	**Projected Timeline**	**Projected Resources**	**Rationale for Action**	**How Action Contributes to Mitigation Strategy**
	3.1.3 – Develop a hazard event database to help state and local emergency managers with hazard mitigation and other planning initiatives.	State Emergency Management Division	1 year	Existing resources	A database to capture and organize the volume of information generated by hazard research and actual hazard events does not currently exist.	Improving knowledge about hazards and hazard events will improve mitigation and other planning designed to reduce the impact of hazard events on local and state economies.
	3.1.4 – Develop state hazard profiles for manmade and technological hazards.	State Emergency Management Division	2 years	Existing resources	Existing profiles only discuss state and local vulnerability to natural hazards.	These additional profiles will improve state and local hazard mitigation planning designed to reduce the impact of all hazard events on local and state economies.
	3.1.5 – Increase the number of state agencies participating as planning partners in the State Hazard Mitigation Plan.	State Emergency Management Division	3 years	Existing resources	Only 30 state agencies are part of the current state hazard mitigation planning effort.	Increasing the number of state agencies involved with hazard mitigation planning and initiatives will reduce the impact of hazard events on the operations of state government and on the state's economy.

Goal #3 – Promote A Sustainable Economy						
Strategy	**Action**	**Responsible Agency**	**Projected Timeline**	**Projected Resources**	**Rationale for Action**	**How Action Contributes to Mitigation Strategy**
3.2 – Continue critical business operations.	3.2.1 – Help state agencies develop continuity of operations and evacuation/relocation plans for critical business operations located in high-risk hazard areas, including lahar inundation zones and areas of high seismic risk.	State Emergency Management Division, with Department of Natural Resources – Division of Geology and Earth Resources	Ongoing	Existing resources	Agencies need to determine how to maintain critical operations in facilities located in high hazard risk areas.	Keeping state government operating during and following hazard events is important to serving clients and keeping the state's economy moving ahead.
	3.2.2 – Develop a plan and seek funding for installing backup electric systems in critical state-owned facilities.	Department of General Administration	3 years	Resources to be determined	Backup power systems will maintain and protect key property and systems during hazard events.	Backup electric systems will keep key state services open during and after hazard events when vulnerable populations need services most.
	3.2.3 – Develop a plan and seek funding for installing backup telecommunication systems in critical state-owned facilities.	Department of Information Services	3 years	Resources to be determined	Backup communication systems will keep critical functions of state government operational during hazard events.	Backup communication systems will keep key state services open during and after hazard events when vulnerable populations need services most.

Goal #3 – Promote A Sustainable Economy						
Strategy	**Action**	**Responsible Agency**	**Projected Timeline**	**Projected Resources**	**Rationale for Action**	**How Action Contributes to Mitigation Strategy**
	3.2.4 – Help state agencies develop, implement and test mandated plans to ensure their information technology infrastructure are protected against service interruptions, including those caused by large-scale disasters.	Department of Information Services – Information Services Board	Ongoing	Existing resources	Information technology infrastructure is crucial to nearly all operations of state government.	Keeping state government operating during and following hazard events is important to serving clients and keeping the state's economy moving ahead.

Goal # 4 – Protect The Environment						
Strategy	**Action**	**Responsible Agency**	**Projected Timeline**	**Projected Resources**	**Rationale for Action**	**How Action Contributes to Mitigation Strategy**
4.1 – Develop hazard mitigation policies that protect the environment.	4.1.1 – Establish a working group with electric utilities to explore development of recommendations for selective de-energizing of power lines to reduce the risk of wildland fire in interface areas during emergencies.	Department of Natural Resources – Resource Protection Division, with Utilities and Transportation Commission and Department of Community Trade and Economic Development – Energy Office	2 Years	Existing resources	A standardized protocol for de-energizing power lines does not currently exist.	Reducing the potential for power-line caused fires in the interface area helps limit property damage and protects forest resources already at risk to wildfire.

Goal # 4 – Protect The Environment						
Strategy	**Action**	**Responsible Agency**	**Projected Timeline**	**Projected Resources**	**Rationale for Action**	**How Action Contributes to Mitigation Strategy**
	4.1.2 – Establish a working group with electric utilities to explore development of recommendations on cost-effective use of underground cable in high-risk hazard areas, including wildland fire interface areas.	Department of Natural Resources – Resource Protection Division, with Utilities and Transportation Commission and Department of Community Trade and Economic Development – Energy Office	2 Years	Existing resources	Burying power cables may reduce the number of fires caused by energized aboveground lines during hazard events.	Reducing the potential for power-line caused fires in the interface area helps limit property damage and protects forest resources already at risk to wildfire.
	4.1.3 – Develop and implement effective silviculture strategies that improve the health of forests and reduce the amount of fuels available for wildland fires from dead and dying trees.	Department of Natural Resources – Resource Protection Division	Develop plan – 1 Year; implement ongoing	Existing resources and National Fire Plan grants	About 10 percent of the state's forests have trees killed or defoliated by forest insects or diseases.	Improving the health of the forest will make less fuel available for wildland fire and protect forest resources.

Goal # 5 – Increase Public Preparedness For Disasters						
Strategy	**Action**	**Responsible Agency**	**Projected Timeline**	**Projected Resources**	**Rationale for Action**	**How Action Contributes to Mitigation Strategy**
5.1 – Understand natural hazards and the risk they pose.	5.1.1 – Ensure that hydraulic analysis of watersheds and updated flood maps use the most current modeling available in order to provide an accurate portrayal of anticipated flood conditions.	Department of Ecology	Ongoing; complete by 2010	Flood mapping funds from FEMA	State currently involved in updating all flood hazard maps statewide; most are out of date by many years and do not reflect the impact of recent development.	Better information on watersheds and flood levels will improve understanding for decisions on floodplain management and strategies to protect lives and property.
	5.1.2 – Establish minimum standards and develop a model checklist for geotechnical reports.	Department of Natural Resources – Division of Geology and Earth Resources, with Department of Licensing	3-5 Years	Existing resources	Such standards do not currently exist.	Improved reports allow for better land-use decisions and improved public safety in critical areas, especially geologically hazardous and frequently flooded areas.
	5.1.3 – Establish a funded program for state agency or peer review of geotechnical and geologic reports to ensure their accuracy and basis on best available science.	Department of Natural Resources – Division of Geology and Earth Resources	3 Years	Resources to be determined	No program currently exists.	Improved reports allow for better land-use decisions and improved public safety in critical areas, especially geologically hazardous and frequently flooded areas.

Goal # 5 – Increase Public Preparedness For Disasters						
Strategy	**Action**	**Responsible Agency**	**Projected Timeline**	**Projected Resources**	**Rationale for Action**	**How Action Contributes to Mitigation Strategy**
	5.1.4 – Seek additional funding for the state's geologic survey for research to improve understanding of the threats posed by earthquakes, landslides, and other geologic hazards in Washington.	Department of Natural Resources – Division of Geology and Earth Resources, with Governor's Emergency Management Council	4-6 Years	Resources to be determined	Funds for the state's geologic survey work were cut in the 2003-05 budget due to a revenue shortfall.	Adequate funding is necessary to fully understand threat posed by geologic hazards and help communities protect and limit development in geologically hazardous areas.
	5.1.5 – Seek additional funding for maintenance and expansion of the Pacific Northwest Seismic Network, and for deploying the Advanced National Seismic System.	Department of Natural Resources – Division of Geology and Earth Resources, State Emergency Management Division, with University of Washington and Governor's Emergency Management Council	3 Years	Existing resources	Advanced seismic network instruments provide more information about earthquakes on a real-time basis than present instruments.	Real-time earthquake information can be critical in saving lives and preserving property in the immediate aftermath of a disastrous earthquake. It also improves understanding of the hazard, leading to improved public preparedness.

Goal # 5 – Increase Public Preparedness For Disasters						
Strategy	**Action**	**Responsible Agency**	**Projected Timeline**	**Projected Resources**	**Rationale for Action**	**How Action Contributes to Mitigation Strategy**
	5.1.6 – Obtain funding to complete tsunami modeling for all coastal areas of the state, including Puget Sound.	State Emergency Management Division, with Department of Natural Resources – Division of Geology and Earth Resources	Complete 11 jurisdictions in next 3 years; draft modeling plan extends to FY 2011	NOAA – National Tsunami Hazard Mitigation Program	Tsunami hazard is not well understood in all coastal communities threatened by these damaging sea waves.	Completing tsunami modeling and mapping will help communities limit future development in these areas and prepare evacuation plans and public education programs.
5.2 – Improve hazard information, including databases and maps.	5.2.1 – Develop and maintain an inventory of existing geographical databases for natural hazards.	Department of Natural Resources, with State Emergency Management Division and State Geographic Information Council	3 Years	Existing and additional resources	Many land-use planners and emergency managers do not know where to turn to for geographical (GIS) databases for hazards, or whether such databases exist.	Maintaining a centralized library of hazard databases will improve their accessibility and expand their use by land-use planners and emergency managers, resulting in better plans and mitigation initiatives.
	5.2.2 – Accelerate mapping of natural hazard areas around the state, including tsunami inundation areas in coastal areas, and develop GIS-compatible database products for them.	Department of Natural Resources – Division of Geology and Earth Resources	3 Years	Dependent on continued funding	Few GIS databases for natural hazards exist.	Availability of GIS databases for natural hazards would greatly improve mitigation initiatives and land-use planning.

Goal # 5 – Increase Public Preparedness For Disasters						
Strategy	**Action**	**Responsible Agency**	**Projected Timeline**	**Projected Resources**	**Rationale for Action**	**How Action Contributes to Mitigation Strategy**
	5.2.3 – Develop and maintain a central repository of geotechnical, geologic and hydrologic historical data.	Department of Natural Resources – Division of Geology and Earth Resources	3 Years	Dependent on additional funding	Many land-use planners and emergency managers do not know where to turn to for historical data on geologic and hydrologic hazards.	A centralized library of historic data on geologic and hydrologic hazards will improve their accessibility and expand their use by land-use planners and emergency managers, resulting in better plans and mitigation initiatives.
5.3 – Improve public knowledge of hazards and protective measures so individuals appropriately respond during hazard events.	5.3.1 – Assess the state's public education program on emergency preparedness and disaster resistance to determine its effectiveness and establish a baseline for future education efforts.	State Emergency Management Division	2 Years	Existing program resources, state mitigation programs	The state spends $40-50,000 each year on public education without understanding of what the public knows about hazards, what preparedness and mitigation steps people have taken, and how they will respond during a hazard event.	Understanding what the public knows about hazards and whether they know what to do before and during a hazard event will help the state develop an effective public education strategy and appropriate materials to improve public knowledge of hazards and preparedness.

Goal # 5 – Increase Public Preparedness For Disasters						
Strategy	**Action**	**Responsible Agency**	**Projected Timeline**	**Projected Resources**	**Rationale for Action**	**How Action Contributes to Mitigation Strategy**
	5.3.2 – Develop and implement a coordinated state all-hazard public education strategy that builds on the results of the assessment of previous education efforts. The strategy shall address development of programs and materials that: • Motivate individuals and families to take action to prepare for and then respond appropriately to hazard events. • Are culturally relevant for various ethnic populations. • Address the needs of special population groups, including but not limited to school children, senior citizens, and low-income families.	State Emergency Management Division	3 years	Existing mitigation program resources	The state spends $40-50,000 each year on public education without having a targeted strategy to increase public understanding of hazards, what preparedness and mitigation steps people should take, and how they should respond during a hazard event.	Establishing a targeted public education strategy will improve public knowledge of hazards and preparedness and improve the effectiveness of the state's public education program.

Goal # 5 – Increase Public Preparedness For Disasters						
Strategy	**Action**	**Responsible Agency**	**Projected Timeline**	**Projected Resources**	**Rationale for Action**	**How Action Contributes to Mitigation Strategy**
	5.3.3 – Develop and maintain a comprehensive public education program that increases awareness of the wildland interface fire risk and promotes actions that reduce the risk of fire to life and property.	Department of Natural Resources – Resource Protection Division	Ongoing	Existing resources	Development in interface areas is increasing, but the public, property developers and local planners do not fully understand the wildfire risk in those areas.	Increasing the knowledge of the public, property developers and local planners of the wildland fire risk and mitigating that risk will improve public safety in interface areas.
	5.3.4 – Expand the concept of the disaster information clearinghouse (e.g., Nisqually Earthquake Clearinghouse) into a multi-hazard information center.	State Emergency Management Division, in conjunction with Department of Natural Resources – Division of Geology and Earth Resources, and Federal Emergency Management Agency	3 years	Existing resources	There is no centralized resource for hazard information needed by emergency response, mitigation and land-use planners, and public education specialists.	A centralized location or resource of hazard information will improve planning and public education initiatives and improve the effectiveness of preparedness and mitigation efforts.
5.4 – Develop new policies to enhance hazard mitigation initiatives.	5.4.1 – Research and develop the rationale for a permanent state organization (board, commission, etc.) to establish, coordinate, and evaluate state policy on seismic safety.	State Emergency Management Division, with Department of Natural Resources and Governor's Emergency Management Council	3 years	Existing resources	The state currently does not have an organization to establish, coordinate, and evaluate state policy on seismic safety.	Establishing a policy organization will improve development and implementation of state seismic policy and result in safer communities.

Plan Summary

Goal # 5 – Increase Public Preparedness For Disasters						
Strategy	**Action**	**Responsible Agency**	**Projected Timeline**	**Projected Resources**	**Rationale for Action**	**How Action Contributes to Mitigation Strategy**
	5.4.2 – Educate key state officials and policy makers about the state's natural hazards, the threats they pose, and strategies to reduce the risk.	State Emergency Management Division, with Governor's Emergency Management Council	1 year	Existing resources	Many elected state officials and their appointees lack knowledge of the hazards the state faces and strategies to reduce the risk. (Note: A new Governor will take office in January 2005.)	Improving knowledge of key state officials of the state's hazards and the risks they pose will lead to development of better policies and improved funding for hazard reduction strategies.